

51 mm (2") photomultiplier

9215B series data sheet

1 description

The 9215B is a 51mm (2") diameter, end window photomultiplier with blue-green sensitive bialkali photocathode and 8 high gain, high stability, SbCs dynodes of linear focused design.

2 applications

- x-ray and gamma-ray spectroscopy
- high light level

3 features

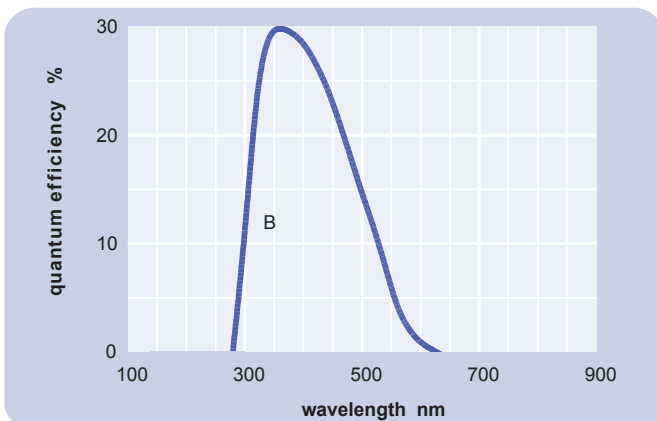
- high pulsed linearity
- good pulse height resolution

4 window characteristics

	9215B borosilicate
spectral range *(nm)	290 - 630
refractive index (n_d)	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

* wavelength range over which quantum efficiency exceeds 1 % of peak

5 typical spectral response curves

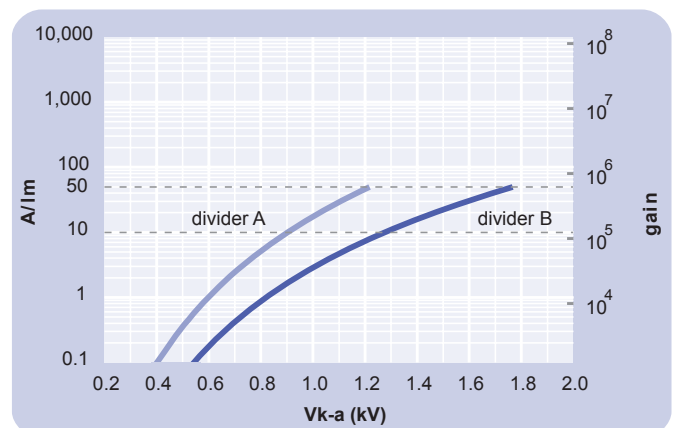


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		48	
quantum efficiency at peak	%		30	
luminous sensitivity	$\mu\text{A/lm}$		80	
with CB filter		9	12.5	
with CR filter			2	
dynodes: 8LFSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		10	
max. rated anode sensitivity	A/lm		50	
overall V for nominal A/lm	V		900	1150
overall V for max. rated A/lm	V		1200	
gain at nominal A/lm	$\times 10^6$		0.1	
dark current at 20 °C:				
dc at nominal A/lm	nA		0.01	1
dc at max. rated A/lm	nA		0.05	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
pulse height resolution:				
^{57}Co with 2" x 2" NaI (T1)	μA		9.5	
rate effect (I_a for $\Delta g/g=1\%$):	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	$T \times 10^{-4}$			
temperature coefficient:	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
multi electron rise time	ns		4	
multi electron (fwhm)	ns		6.5	
transit time	ns		38	
weight:	g		95	
maximum ratings:				
anode current	μA			100
cathode current	nA			100
gain	$\times 10^6$			0.6
sensitivity	A/lm			50
temperature	$^\circ\text{C}$	-30		60
V (k-a) ⁽¹⁾	V			2000
V (k-d1)	V			300
V (d-d) ⁽²⁾	V			300
ambient pressure (absolute)	kPa			202

⁽¹⁾ subject to not exceeding max. rated sensitivity ⁽²⁾ subject to not exceeding max rated V(k-a)

7 typical voltage gain characteristics



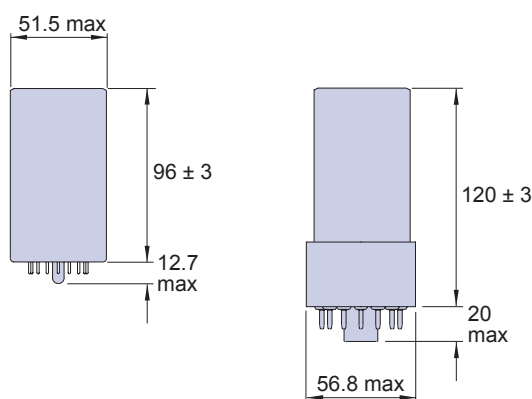
8 voltage divider distribution

	k	d ₁	d ₂	.....	d ₅	d ₆	d ₇	d ₈	a	
A	3R	R	.....		R	R	R	2R	R	Standard
B	3R	R	.....		R	2R	3R	4R	3R	High Pulsed linearity

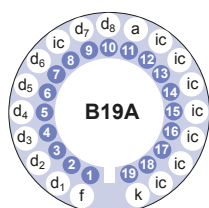
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

The drawings below show the 9215B in hardpin format and the 9215KB with the B14A cap fitted.

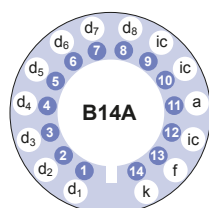


10 base configuration (viewed from below)



B19A hardpin base
(for 9215B)

'ic' indicates an internal connection



B14A cap
(for 9215KB)

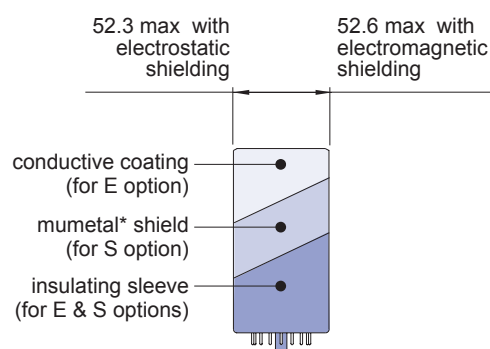
'ic' indicates an internal connection

Our range of B19A sockets is available to suit the hardpin base. Our range of B14A sockets is available to suit the B14A cap. Both socket ranges include versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9215B meets the specification given in this data sheet. You may order **variants** by adding a suffix to the type number. You may also order **options** by adding a suffix to the type number. You may order product with **specification options** by discussing your requirements with us. If your selection option is for one-off order, then the product will be referred to as 9215A. For a repeat order, ET Enterprises will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

9215	
base options	
K	capped
options	
E	electrostatic shielding see drawing below
S	electromagnetic shielding see drawing below
M	supplied with spectral response calibration
specification options	
B	as given in data sheet
A	single order to selected specification
Bnn	repeat order to selected specification



12 voltage dividers

The standard voltage dividers available for these pmts are tabulated below:

9215B	9215KB	k	d ₁	d ₂	.....	d ₄	d ₅	d ₆	d ₇	d ₈	a
C684A	C633A	2R	R	.....		R	R	R	R	R	
C684B	C633B	2R	R		R	2R	3R	4R	3R	
C684C		150 V	R		R	R	R	R	R	
C684D		150 V	R		R	2R	3R	4R	3R	

R = 330 kΩ

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